

## A B S T R A C T

When a substrate 30 is to be subjected to a magnetron plasma process, a dipole ring magnet 21 is provided, in which a large number of anisotropic segment magnets 22 are arranged in a ring-like shape around the outer wall of a chamber 1. A magnetic field gradient, wherein the magnetic field strength decreases from the E pole side toward the W pole side in a direction perpendicular to a magnetic field direction B, is formed in a plane perpendicular to the direction of an electric field between a pair of electrodes separated from each other. The anisotropic segment magnets have a first section a including anisotropic segment magnets arranged in the vicinity of a region A located outside an E pole side end of the process substrate with an N pole thereof being directed toward this region, and a second portion b including anisotropic segment magnets arranged with an S pole thereof being directed toward this region, to locally increase the magnetic field strengths of the first and second regions.

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